

**Monitoring Children's Behaviors in Their Natural
Settings: Applying RFID Sensors to Study Child
Development**

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Abstract

Children's social interactions are crucial for healthy and adaptive social and emotional development. Free play situations, like the school break, represent an important opportunity for children as they learn how to negotiate, take their losses, be a part of a group, and not stand alone. Yet how to measure children's social interactions in groups outside or at large playgrounds? Traditionally, questionnaires and observations are used in order to gain a systematic insight into children's social behavior when they move around in groups; however, these methods can be both unreliable and intrusive. To increase the construct validity of these measures, we have applied a new method to follow children's dynamics at the playground, using radio frequency identification devices (RFID). In this case, we describe how this method works, what it can measure, how it adds to current methods, and the limitations of each of these measures (questionnaires, observations, and RFID sensors). Finally, we give suggestions for the use of RFID sensors and for further development in this area.

Learning Outcomes

By the end of this case students should be able to

- Understand the mechanisms underlying the three methods discussed in this case to index children's (play) behaviors (i.e., questionnaires, systematic observations, and RFID sensor systems)
 - Understand the purpose of RFID wearable sensors as a methodological tool
 - Understand the benefits and limitations of questionnaires, systematic observation, and RFID sensors
 - Understand how these methods that stem from different methodological approaches can work together and are complementary
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Project Overview and Context

Understanding young children's socio-emotional development is quite a challenge. Being students or researchers of child development, we are encouraged to observe children whenever we can, just as Charles Darwin or Jean Piaget did. Sometimes, we do it informally, other times we create specific settings to observe particular aspects of children's behavior or development. A young child's attempts to join his or her older siblings' play or a preschooler's hesitant approaches to join a group of peers can be fascinating to observe. The systematic observation of children has been applied in different research areas since the end of the 18th century. It is considered one of the oldest and most used methods to learn about children, albeit not the most popular in scientific research. Although all research requires careful